

Problem 5:

RETAILING: Consider the problem faced by Bullox Department Store is problem 4(a).

- Determine the range of optimality for the unit profit of polyester suits. For polyester suits, what would be the effect on the optimal solution of
 - Overestimating their unit profit by 1\$
 - Underestimating their unit profit by 1\$
 - Overestimating their unit profit by 2\$
 - Underestimating their unit profit by 2\$
- Show whether each of the following strategies, individually, would be profitable for Bullox:
 - Utilizing 400 adjacent square feet of space that had been used by women's sportswear. This space has been projected to net Bullox only 750\$ over the next 90 days.
 - Spending an additional 400\$ on advertising.
 - Hiring an additional salesperson for the 26 total Saturdays and Sundays of the season. This will cost Bullox 3600\$ in salaries, commissions and benefits but will add 260 salesperson-hours to the suit department for the 90 day season.
- Suppose we added a constraint restricting the total number of suits purchased to no more than 5000 for the season. How would the optimal solution be affected?

Solution:

- We used excel sheet [g6-s4-p5-a.xls](#) . With changing cell B7 with 36 (Overestimating unit profit by 1\$), 34 (Underestimating unit profit by 1\$), 37 (Overestimating unit profit by 2\$), and 33 (Underestimating unit profit by 2\$) and re-solving the problem we get following results for total income

Part	New Total Profit	Change	Excel Link	Unit Numbers
a	159000\$	+1500\$	g6-s4-p5-a-a.xls	Not Changed
b	156000\$	-1500\$	g6-s4-p5-a-b.xls	Changed
c	160500\$	+3000\$	g6-s4-p5-a-c.xls	Not Changed
d	156000\$	-1500\$	g6-s4-p5-a-d.xls	Changed

- We solve each problem in same excel sheet but to show we save all sections into different files.

Part	New Total Profit	Change	Excel Link	Comment
a	156750\$	-750\$	g6-s4-p5-b-a.xls	Hence area is not binding change on this has no effect.
b	158098\$	+598\$	g6-s4-p5-b-b.xls	Advertising price is binding.
c	173385\$	+15885\$	g6-s4-p5-b-c.xls	Most effective solution.

- To solve this section we modified our excel sheet and get sheet [g6-s4-p5-c.xls](#) . As seen from sheet this solution causes 500\$ of less profit.